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PHOTOGRAPHS MADE AT GREEN RIVER OF THE CORONA AND PROMINENCES

That part of the program of the Mount Wilson Solar Observatory at Green River, dealing with the direct photography of the corona, was carried out by the use of an eight-inch objective of thirty feet focus. Four exposures were made, of eight, one-half, sixty-five, and one-half seconds respectively. Clouds with rifts in them covered the Sun, and the three short exposures showed very uneven intensities around the Sun. The longer exposure, however, gave time for the entire corona to be exposed thru the rifts and a fairly satisfactory negative was secured, showing the main features of the corona quite well, as can be seen from the illustration. The prominences also are retained in this negative but do not show in the reproduction.

The prominence illustrated was the one at the west limb, and was taken one or two seconds after third contact. This prominence seems to have been a very active one, as the objective grating images show considerable distortion due to radial velocity.

Graflex plates were employed, and a soft working developer used in order to bring out the faint extensions of the corona and at the same time to hold the prominences.

FERDINAND ELLERMAN.

THE GREEN CORONA LINE

The attempt on June 8th by the Mount Wilson expedition to find the absolute wave-length of the green corona line and the rotation of the corona was only partially successful, as owing to the clouds the spectrum of the corona was obtained only on the east edge of the Sun.

The instrument used was a prismatic spectrograph of 40 inches focus, giving a scale of 6 angstroms per mm. at λ5300. The slit coincided with the Sun's equator on an image 2 cm. in diameter. Just before totality a comparison spectrum was obtained by exposure on an iron arc, a simple occulting arrangement cutting out the iron spectrum in the region λ5303. The comparison spectrum has made it possible to get the absolute wave-length of the green line to a high degree of accuracy, aside from the influences of rotation and local movements. The spectrum of the line is very weak and gives the impression that it might appear less simple with a stronger exposure.

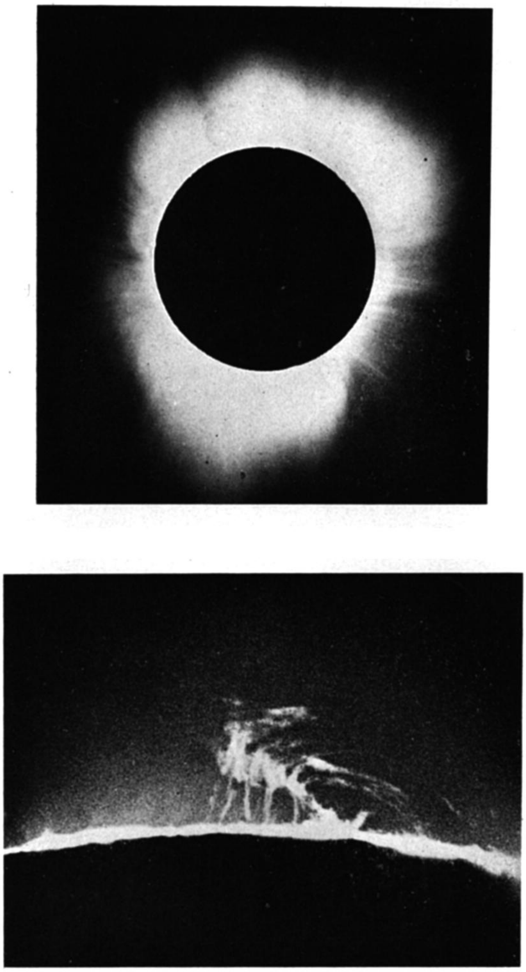

Fig. 8.
Photographs of the Corona and Prominences
Made at Green River

The plate has been measured by Mr. Adams, Miss Ware and Mr. St. John. The reductions were made by the use of the Hartmann formula and the resulting wave-length corrected for the motions of the Earth. The closely agreeing results are as follows:

Adams	5303.205	angstroms
St. John	.204	
Ware	.203	
Mean	5303.204	Rowland units
	.122	International units

As this value represents the wave-length at the east limb, it is subject to an unknown correction due to rotation. If, however, it be assumed that the rotation of the corona is of the same order as the rotation of the higher chromosphere, namely, that at the east limb it is approaching the Earth with a velocity of 2 km. per second, the correction is + 0.035 angstroms, making the Rowland and International wave-lengths 5303.239 and 5303.157 angstroms, respectively. This result confirms the observations of Campbell, Evershed and Fowler at the 1898 eclipse in showing that the wave-length of the green corona line is 5303 instead of 5317, which was the accepted wave-length for some years. The main value of the present observation is that it establishes the wave-length of the green corona line in terms of iron-arc standards and furnishes a basis for comparison with future similar observations.

C. E. St. John.

Mount Wilson Observations of the Spectrum of Nova Aquilae No. 3

Nova Aquilae was first observed by Joy about ten o'clock P. S. T. on the evening of June 8th. Soon after midnight the spectrograph was attached to the 60-inch reflector and several photographs of the spectrum were secured. A series of observations was obtained on every night between June 8th and June 17th, and since the latter date on June 19th and 29th, July 2nd and July 9th. Beginning with the night of June 11th, the 40-inch camera which had been used at the solar eclipse was employed for some of the observations. A considerable number of the spectrograms, extending as far as Hα, cover the yellow and red portions of the spectrum.

The earliest recorded spectrum of the Nova may be classified in general as of the A-type with very broad hazy hydrogen bands displaced about 20 angstroms toward the violet. The magnesium line